REMARKS

Claims 1, 9, and 46 have been amended, claims 29-41 have been cancelled without prejudice, and new claims 53-56 have been added. Accordingly, claims 1-28 and 42-56 are pending in the present application. The claim amendments and new claims are supported by the specification and claims as originally filed, with no new matter being added. Accordingly, favorable reconsideration of the pending claims is respectfully requested.

The specification has been amended to include the patent number of a cited U.S. application, and to remove a patent number inadvertently included in the specification.

1. Rejections Under 35 U.S.C. § 102/103

Claims 1, 2, 4-6, 8, 9, 19, and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,011,383 to Sylvester et al. (hereinafter "*Sylvester*") for the reasons set forth on pages 2-3 of the Office Action. In addition, claims 12 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious over *Sylvester* for the reasons set forth on page 3 of the Office Action. Applicants respectfully traverse.

Present claim 1 is directed to a security article comprising a light transmissive substrate having a first surface with an optical interference pattern, and a "discrete color shifting" optical coating on a second surface of the substrate. Claim 1 has been amended to recite that the optical coating provides an observable color shift "such that the article has a first background color at a first angle of incident light or viewing and a second background color different from the first background color at a second angle of incident light or viewing." Claim 1 now further recites that "the article exhibits an optical interference effect in addition to the first and second

background colors." Independent claim 9 has been amended to recite similar limitations. Support for these limitations added to claims 1 and 9 can be found in the application as filed on page 9, lines 2-7, and page 13, lines 14-17.

Sylvester does not teach or suggest an article having discrete "color shifting" features as this term is used in the present disclosure or commonly used in the art. Such a discrete color shifting feature has the characteristic of producing a first color at a first angle of incident light or viewing and a second color different from the first color at a second angle of incident light or viewing. Such color shifts can be, for example, gold-to-green, green-to-magenta, blue-to-red, green-to-silver, magenta-to-silver, magenta-to-gold, etc. (*see* specification, page 13, lines 14-17).

In contrast, *Sylvester* teaches a decorative optical material wherein "the color effect will be *iridescent*" (col. 6, line 62, emphasis added). Iridescence, however, is a completely different optical effect from color shifting. Although *Sylvester* does not define the term, iridescence is defined by one common reference as follows:

> A lustrous rainbowlike play of color caused by differential refraction of light waves (as from an oil slick, soap bubble, or fish scales) that tends to change as the angle of view changes.

(*Merriam-Webster's Collegiate Dictionary, 10th edition*, 1998). Like iridescence, color shifting is an angle-dependent optical effect. Color shifting is not, however, a "rainbowlike" play of color. Instead, color shifting is a distinct change in color, from a first color at a first angle, to a second, different color at a second angle. Consistent with the common definition of iridescence, *Sylvester* teaches that:

> It is therefore not necessary to hold the thickness of the dielectric layer, or indeed any of the layers constant, but rather wide tolerances are permissible. Variations

in thickness incidental to these wide tolerances introduce still further iridescent effects. . .

(col. 6, lines 62-67). As one of ordinary skill in the art would understand, variations in optical layer thicknesses do indeed contribute to iridescence, but the same variations would destroy any color shifting effects.

Claims 1 and 9 also recite that the article exhibits "an optical interference effect in addition to the first and second background colors." There is no teaching or suggestion in *Sylvester* of such a feature. Rather, *Sylvester* discloses that embossing of the material produces an additional iridescent effect "due to the difference in the angles of incidence and reflection because of the contour differences introduced by the embossing." (Col. 8, lines 13-20). Thus, *Sylvester* teaches that its material can have an iridescent effect produced by the multilayer sheet as well as a further iridescent effect because of the embossing. Such multiple iridescent effects are not the same as an "optical interference effect" which is combined with a "discrete color shift" that produces "first and second background colors" as recited in claims 1 and 9.

Claim 9 further recites that the second surface of the light transmissive substrate is "substantially planar" and that the color shifting multilayer optical film is on the second surface. Such a feature is shown in Figure 1A of the present application. Since the second surface of the substrate is substantially planar, the optical coating 16 is also substantially planar. There is no teaching in *Sylvester* of a coated article that has a light transmissive substrate having a first surface with an optical interference pattern, and an optical coating on a second opposing surface of the substrate that is substantially planar. *Sylvester* does not keep the optical coating planar in its laminate, since the optical coating itself is embossed or deposited onto an embossed surface (*see* col. 10, lines 38-48).

Claim 4 further recites the optical interference pattern is a diffraction grating pattern or a holographic image pattern. There is no teaching or suggestion of a diffraction grating pattern or a holographic image pattern in *Sylvester*. Rather, *Sylvester* discloses that the coating material is embossed at gross dimensions in a "gross pattern" (col. 8, line 23), in a "crumpling operation" (col. 9, line 74 to col. 10, line 6), or with "lenticular indentations" (col. 8, line 14). In particular, *Sylvester* discloses that its embossed pattern can be lenticular ridges and grooves that produce a gross pattern on the surface of the material, or that embossed lines can have contours corresponding to those of a Fresnel lens (col. 8, lines 21-29). As indicated in attached Exhibits 1 and 2, a lenticular lens typically has dimensions of 25 microns to 1.0 mm, whereas a Fresnel lens typically has 50-200 grooves per inch. Such dimensions generally produce a pattern that is readily seen by the human eye.

In contrast, holographic images or diffraction gratings are constructed such that the line spacing is on the order of a quarter wavelength of light (*i.e.*, about 1000-2000 Angstroms or 0.1-0.2 microns), which is below human eye resolution. Furthermore, *Sylvester* could not have possibly contemplated the use of holographic features and other such graphic images prepared from light interference structures because the first hologram was made in 1962, five years after the filing date (1957) of the application that issued as the *Sylvester* patent. In addition, the first laser using coherent light (necessary for the production of light interference structures) was not invented until 1960 (*see* attached Exhibit 3).

Accordingly, for the above reasons, claims 1, 4 and 9 are not anticipated by or obvious over *Sylvester*. The remaining rejected claims 2, 5-6, 8, 12, 13, 19, and 20 depend from a respective one of claims 1 or 9, and thus include the limitations of the respective independent claims. Hence, these dependent claims also are not anticipated by or obvious over *Sylvester* for

at least the same reasons as discussed above for claims 1 and 9. Applicants therefore respectfully request that the rejection of claims 1, 2, 4-6, 8, 9, 12, 13, 19, and 20 under 35 U.S.C. § 102(b) and/or § 103(a) be withdrawn.

2. Rejections Under 35 U.S.C. § 103

Claims 3, 10, 11, 18, 21, and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sylvester* for the reasons set forth on pages 4-6 of the Office Action. Applicants respectfully traverse.

Claim 3 depends from claim 1, and claims 10, 11, 18, 21, and 22 depend from claim 9. Thus, claims 3, 10, 11, 18, 21, and 22 include the limitations of the respective independent claims. Hence, these dependent claims would not have been obvious over *Sylvester* for at least the same reasons as discussed above for claims 1 and 9.

With respect to claim 21, the Examiner asserts that the use of a cobalt-nickel alloy for the reflector layer would have been obvious even though such a material is not disclosed in *Sylvester*. Applicants respectfully disagree. To find a suitable magnetic alloy, such as cobalt-nickel, one skilled in the art would have to find an alloy that would be congruent in evaporation (*i.e.*, same vapor pressures for both metals), have magnetic properties, and have the right spectral characteristics for the reflector layer. Such an investigation to find a suitable alloy would not involve merely routine experimentation. Further, there is no teaching or suggestion in *Sylvester* that such properties were even contemplated for a reflector layer. Thus, use of a cobalt-nickel alloy for the reflector layer as recited in claim 21 would not have been obvious.

For the above reasons, Applicants respectfully request that the rejection of claims 3, 10, 11, 18, 21, and 22 under 35 U.S.C. § 103(a) be withdrawn.

3. New Claims

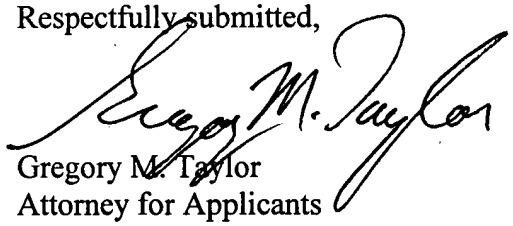
New independent claim 53 is directed to a security article and includes limitations similar to those of present claim 1. In addition, claim 53 recites that the color shifting optical coating is on one of the first or second surfaces of the substrate. New claims 54-56 depend from claim 53 and are supported by the specification, drawings, and claims as filed. Accordingly, new claims 53-56 also present patentable subject matter, and are readable on the currently elected species.

CONCLUSION

In view of the foregoing, Applicants respectfully request favorable reconsideration and allowance of the present claims. In the event there remains any impediment to allowance of the claims, which could be clarified in a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney.

Dated this 14th day of December 2001.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning at page 16, line 5 of the specification has been amended as follows:

Suitable embodiments of the flake structure are disclosed in a copending application Serial Number 09/198,733, filed on November 24, 1998, now U.S. Patent No. 6,157,489 and entitled "Color Shifting Thin Film Pigments," which is incorporated herein by reference. Other suitable embodiments of color shifting or optically variable flakes which can be used in paints or inks for application in the present invention are described in U.S. Patent Nos. 5,135,812, 5,171,363, 5,278,590, 5,084,351, and 4,838,648, [and 4,168,983,] the disclosures of which are incorporated herein by reference.

IN THE CLAIMS:

Claims 1, 9, and 46 have been amended as follows:

1. (Once Amended) A security article comprising:

a light transmissive substrate having a first surface and an opposing second surface, the first surface having an optical interference pattern; and

a color shifting optical coating on the second surface of the substrate, the optical coating providing an observable discrete color shift such that the article has a first background color at a first [as the] angle of incident light or viewing [angle changes] and a second background color different from the first background color at a second angle of incident light or viewing;

wherein the article exhibits an optical interference effect in addition to the first and second background colors.

9. (Once Amended) A security article comprising:

a light transmissive substrate having a first surface and an opposing second surface, the first surface having a diffraction grating pattern or a holographic image pattern and the second surface being substantially planar; and

a color shifting multilayer optical film on the second surface of the substrate, the optical film comprising:

an absorber layer on the second surface of the substrate;

a dielectric layer on the absorber layer; and

a reflector layer on the dielectric layer;

wherein the optical film [coating] provides an observable discrete color shift such that the article has a first background color at a first [as the] angle of incident light or viewing [angle changes] and a second background color different from the first background color at a second angle of incident light or viewing, the article exhibiting an optical interference effect in addition to the first and second background colors.

46. (Once Amended) The security article of claim 42, [wherein the] wherein the dielectric layer comprises a material selected from the group consisting of silicon dioxide, aluminum oxide, magnesium fluoride, aluminum fluoride, cerium fluoride, lanthanum fluoride, sodium aluminum fluorides, neodymium fluoride, samarium fluoride, barium fluoride, calcium fluoride, lithium fluoride, and combinations thereof.